

Transient Voltage Suppressor


Features

- IEC 61000-4-2(ESD) $\pm 15KV$ (air), $\pm 8KV$ (contact)
- ESD Maximum $\pm 17KV$ (air), $\pm 12KV$ (contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)
- IEC61000-4-5 (Lightning) 4 A (8/20us)
- 150Watts peak pulse power per line ($t_p=8/20\mu S$)
- Low capacitance: 0.5 pF typical (I/O to I/O)
- Low operating voltage: 5V
- Low clamping voltage
- Moisture sensitivity level: level 1
- Weight 15 mg (Approximate)
- Small package: DFN2510-10L

Application Information

- High Definition Multi-Media Interface (HDMI)
- Digital Visual Interface (DVI)
- Unified Display Interface (UDI)
- Display Port
- MDDI Ports
- PCI Express
- Serial ATA

Agency Approvals

Icon	Description
RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003
	Mean lead free

Part Number and Electrical Parameter

Part Number	Mark	$I_{DRM}@ V_{DRM}$		$V_{BR}^{\text{①}}@ I_R$		$V_c@I_{pp}^{\text{②}}$		$V_c@I_{pp}^{\text{②}}$		$CO^{\text{③}}$	
		μA	V	V	mA	V	A	V	A	pF I/O-I/O	pF I/O-GND
		MAX		MIN		MAX		MAX		MAX	MAX
BV_ULC0524P	P524	5	5	6	1	15	1	25	4	0.8	1.3

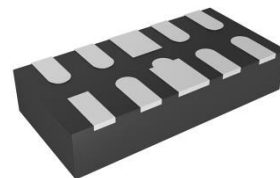
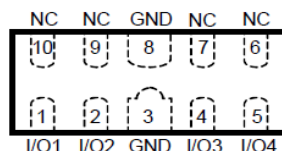
Absolute maximum ratings measured at $T_A = 25^\circ C$ RH = 45%-75% (unless otherwise noted).

① V_{BR} is measured at $I_R = 1mA$

② Surge Waveform: 8/20 μ S.

③ Off-state capacitance is measured in $V_{DC} = 0V$, $V_{RMS} = 1V$, $f = 1MHz$.

Exterior

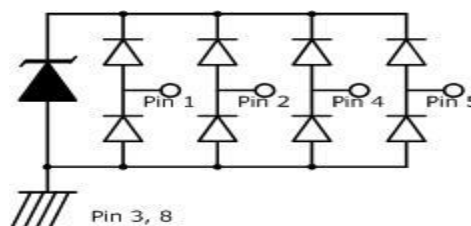


DFN2510-10L

Package (top view)



Schematic



Transient Voltage Suppressor

Part Numbering System

Mark

BV ULC0524P

(1) (2)

(1) Bencent Transient Voltage Suppressor

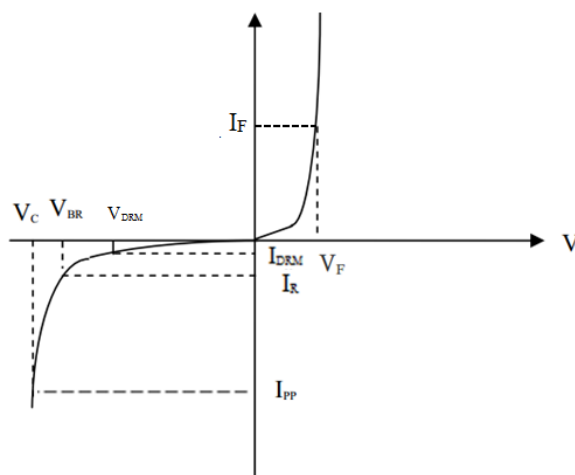
(2) Series: ULC0524P etc.

P524

P524: Part Number

V-I Curve

Parameters	Definition
V_C	Clamping Voltage
I_{PP}	Surge waveform 8/20 μ s
V_{DRM}	Stand-off Voltage
V_{BR}	Breakdown Voltage
I_{DRM}	Reverse Leakage Current
I_R	Test Current
P_{pp}	Peak Pulse Power Dissipation



Thermal Considerations

symbol	Parameter	Value	Unit
T_J	Operating Junction Temperature Range	-55 to +150	$^{\circ}$ C
T_S	Storage Temperature Range	-55 to +150	$^{\circ}$ C

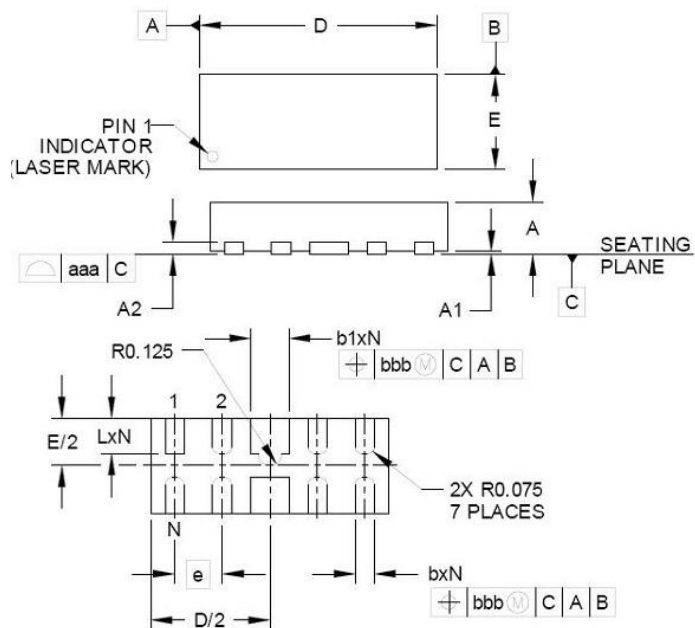
Environmental Characteristics

Testing items	Technical standards
High temperature Reverse Bias Test	Temperature: $150 \pm 3^{\circ}$ C Bias=80% V_{DRM} Time: 168H
High Temperature Life Test	Temperature: 150° C Time: 168H
High-low Temperature Cycle test	Temperature: From -40° C to 125° C Dwell time: 30min, 10-100cycles
High Temperature & High Humidity Test	Temperature: 85° C Humidity: 85% Time: 168H
Pressure cooker Test	Temperature: 121° C, 2atm. Humidity: 100% Time: 24H-168H
Resistance of soldering heat	Temperature: $260 \pm 5^{\circ}$ C Time of dip soldering: 10s, 3times

Note: The above testing items can be specified by customers by contacting Bencent service

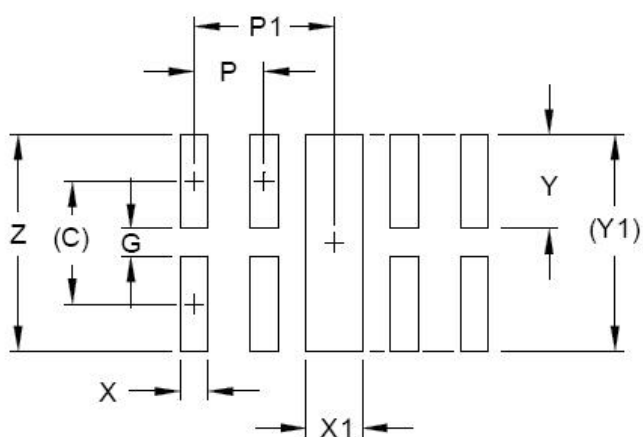
Transient Voltage Suppressor

Product Dimensions



REF	mm	inch
A	0.50±0.05	0.020±0.002
A1	0.03±0.03	0.001±0.001
A2	0.13 (Max)	0.005 (Max)
b	0.20±0.05	0.008±0.002
b1	0.40±0.05	0.016±0.002
D	2.50±0.10	0.098±0.004
E	1.00±0.10	0.039±0.004
e	0.50	0.020
L	0.38±0.05	0.015±0.002

Recommended Soldering Pad

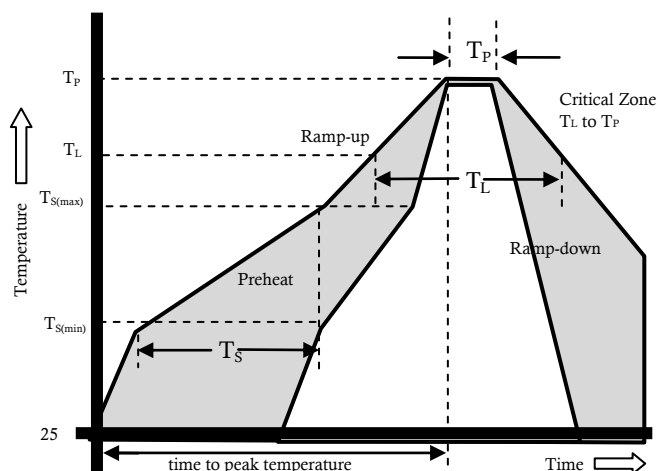


REF	mm	inch
C	0.875	0.034
G	0.20	0.008
P	0.50	0.020
P1	1.00	0.039
X	0.20	0.008
X1	0.40	0.016
Y	0.65	0.026
Y1	1.55	0.061
Z	1.55	0.061

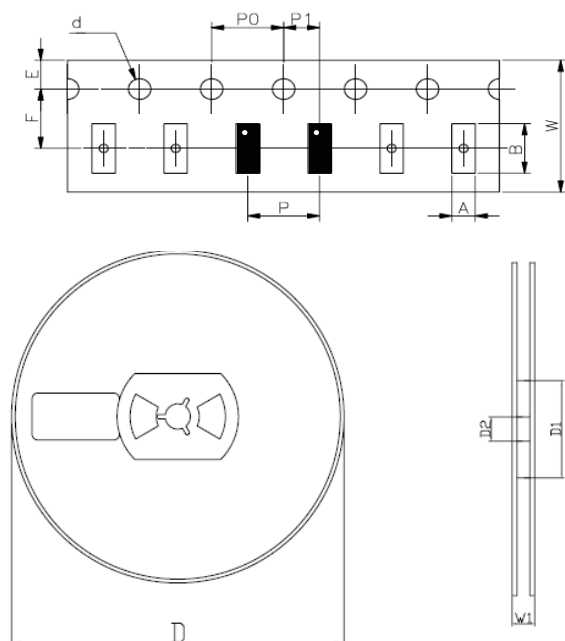
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Reflow Profile

Reflow Condition		Pb-Free assembly
Pre Heat	Temperature Min	150°C
	Temperature Max	200°C
	Time (min to max)	60 – 180 secs
Average ramp up rate (Liquid) Tamp (T _L) to peal		3°C/s max
T _{S(max)} to T _L - Ramp-up Rate		3°C/s max
Reflow	- Temperature (T _L) (Liquid)	217°C
	- Temperature (T _L)	60 – 150 secs
Peak Temperature (T _P)		260±0/-5 °C
Time within 5°C of actual peak Temperature (T _P)		8– 15secs
Ramp-down Rate		6°C/s max
Time 25°C to peak Temperature (T _P)		8 mins Max.
Do not exceed		260°C



Package Reel Information



REF	mm	inch
A	1.2±0.1	0.047±0.004
B	2.7±0.1	0.106±0.004
d	1.50±0.1/-0	0.059±0.004/-0
D	178±1.0	7.01±0.039
D1	55±3	2.165±0.118
D2	13±0.5	0.512±0.020
E	1.75±0.1	0.069±0.004
F	3.6±0.2	0.138±0.008
P	4.0±0.2	0.158±0.008
P0	4.0±0.2	0.158±0.008
P1	2.0±0.2	0.079±0.008
W	8.0±0.2	0.315±0.008
W1	14.4±0.5	0.567±0.020

Outline	Reel (pcs)	Per Carton (pcs)	Reel Diameters (mm)	Carton Size(mm)		
				L	W	H
Taping	3,000	90,000	177	390	370	220